

WHAT IS CLAIMED IS:

1. A method for drying a paper web comprising:
providing a dryer having a first dryer section and a second dryer
section;

5 drying a relatively wet paper web within said first dryer section at
an elevated temperature to form a relatively dry paper web without
significantly increasing the temperature of the paper web above the
thermal degradation temperature of the paper web; and

10 subsequently drying the relatively dry paper web within said
second dryer section at a reduced temperature in comparison to said
elevated temperature.

2. A method as defined in claim 1, wherein said relatively wet
paper web has a solids consistency between about 20% to about 40%.

15 3. A method as defined in claim 1, wherein said dryer is a through-
dryer.

4. A method as defined in claim 1, wherein said relatively dry
paper web has a solids consistency between about 45% to about 70%.

5. A method as defined in claim 1, wherein said elevated
temperature is relatively constant within said first dryer section.

20 6. A method as defined in claim 1, wherein said reduced
temperature is relatively constant within said second dryer section.

7. A method as defined in claim 1, wherein said elevated
temperature decreases within said first dryer section.

25 8. A method as defined in claim 1, wherein said reduced
temperature decreases within said second dryer section.

9. A method as defined in claim 1, wherein said elevated
temperature ranges from about 400°F to about 500°F and said reduced
temperature ranges from about 300°F to about 400°F.

10. A method as defined in claim 9, wherein said elevated

temperature ranges from about 450°F to about 500°F.

11. A method as defined in claim 9, wherein said reduced temperature ranges from about 300°F to about 350°F.

12. A method for drying a paper web comprising:

5 providing a through-dryer having a first dryer section and a second dryer section;

drying a paper web having an initial solids consistency less than about 60% within said first dryer section at an elevated temperature ranging from about 400°F to about 500°F to form a paper web having a
10 solids consistency greater than about 25% without significantly increasing the temperature of the paper web above the thermal degradation temperature of the paper web; and

subsequently drying the paper web having a solids consistency greater than about 25% within said second dryer section at a reduced
15 temperature ranging from about 300°F to about 400°F.

13. A method as defined in claim 12, wherein said elevated temperature ranges from about 450°F to about 500°F.

14. A method as defined in claim 12, wherein said reduced temperature ranges from about 300°F to about 350°F.

20 15. A method as defined in claim 12, wherein said paper web dried within said first dryer section has an initial solids consistency between about 15% to about 45%.

16. A method as defined in claim 12, wherein said paper web dried within said first dryer section has an initial solids consistency between
25 about 20% to about 40%.

17. A method as defined in claim 12, wherein said paper web is dried to a solids consistency greater than about 35% within said first dryer section.

18. A method as defined in claim 12, wherein said paper web is

dried to a solids consistency between about 45% to about 70% within said first dryer section.

19. A method as defined in claim 12, wherein said elevated temperature is relatively constant within said first dryer section.

5 20. A method as defined in claim 12, wherein said reduced temperature is relatively constant within said second dryer section.

21. A method as defined in claim 12, wherein said elevated temperature decreases within said first dryer section.

10 22. A method as defined in claim 12, wherein said reduced temperature decreases within said second dryer section.

23. A method for drying a paper web comprising:
providing a dryer having a first dryer section and a second dryer section;

15 providing a supply air stream;
distributing the supply air stream to said first dryer section and said second dryer section;

contacting a relatively wet paper web with the supply air stream within said first dryer section at an elevated temperature to form a relatively dry paper web;

20 contacting the relatively dry paper web with the supply air stream within said second dryer section at a reduced temperature in comparison to said elevated temperature; and

selecting from one or both of the following steps:

25 i) combining a first stream of air with said supply air stream to provide said elevated temperature within said first dryer section; and

ii) combining a second stream of air with said supply air stream to provide said reduced temperature within said second dryer section.

24. A method as defined in claim 23, wherein said elevated temperature is provided by combining said first stream of air with said

supply air stream.

25. A method as defined in claim 24, wherein said elevated temperature decreases within said first dryer section.

5 26. A method as defined in claim 24, wherein said elevated temperature increases within said first dryer section.

27. A method as defined in claim 23, wherein said reduced temperature is provided by combining said second stream of air with said supply air stream.

10 28. A method as defined in claim 27, wherein said reduced temperature decreases within said second dryer section.

29. A method as defined in claim 27, wherein said reduced temperature increases within said second dryer section.

15 30. A method as defined in claim 23, wherein said elevated temperature ranges from about 400°F to about 500°F and said reduced temperature ranges from about 300°F to about 400°F.

31. A method as defined in claim 23, wherein said elevated temperature ranges from about 450°F to about 500°F.

32. A method as defined in claim 23, wherein said reduced temperature ranges from about 300°F to about 350°F.

20 33. A method as defined in claim 23, wherein said dryer is a through-dryer.